

Role of academic institutions during the COVID-19 pandemic

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Abstract

A novel coronavirus first reported from China has resulted in a formidable outbreak globally, threatening millions of human lives with unprecedented challenges. Society needs effective information source to combat this pandemic. Academic institutions would play an important role in disseminating science-based information and planning for a pandemic crisis. This study aims to examine how academic institutions around the world have been working in combating the COVID-19 pandemic. Two hundred and thirty three high ranking universities representing 44 countries from six continents, namely Africa, Asia, Europe, North America, South America, and Oceania were selected and their websites visited. All information on COVID-19 updated in the websites were noted and classified. Universities from the developed world (North America, Europe) and Oceania were found to be actively disseminating up-to-date information on COVID-19 when compared to those from the developing world. All universities in Oceania, 96.7% universities in North America, 96.6% in Europe, 83% in South America, 61.3% in Asia, and 56% in Africa had information regarding COVID-19 in their websites. The high income countries were facing high casualties of the disease, and the majority of their universities (85.7%) were disseminating up-to-date information through their websites. There exists a gap between the universities of developed and developing world in disseminating COVID-19 pandemic information.

Keywords: coronavirus, pandemics, universities, internet

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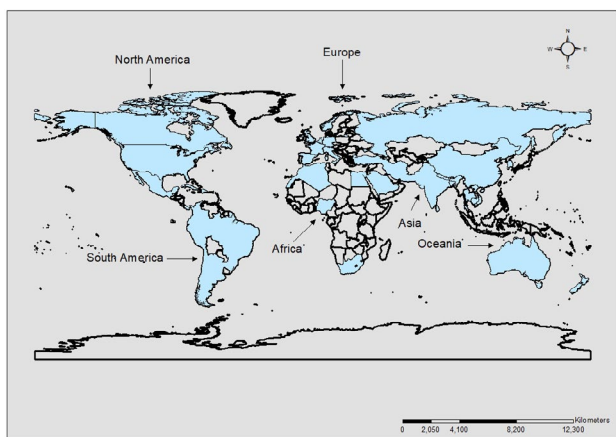


Figure 1. Map showing the countries selected (light blue color) for this study.

Introduction

Coronavirus disease (COVID-19) is an infectious disease caused by the new coronavirus SARS-CoV-2 that was first reported in China in December 2019.¹ This COVID-19 has now spread in 214 countries and territories,² and threatened millions of human lives, devastated social and economic conditions and even nature and wildlife.³ To prevent and decelerate transmission of communicable disease, it is important to intensify health information through reliable sources.⁴ Websites are the virtual front door of organizations. As they have more advantages than the newspaper, radio, television, magazine and billboards, universities devote a greater share to websites and social media for their promotions.

Public perceptions, beliefs and knowledge have a crucial impact on the spread of pandemics. Early and timely communication with parents help control the infectious diseases.⁵ People can play a critical role in curbing the spread of the pandemic, if they are provided with accurate and accessible information about the disease and appropriate responses. Academia plays important role in controlling and planning pandemic in the country,⁶ as educational institutions with their large concentrations of young people have potential to effectively disseminate information on COVID-19 awareness. This may have a positive effect in the community indirectly. This study aimed to examine the role of academic institutions in combating COVID-19.

Methods

We selected 44 countries with high COVID-19 infection. The countries represented six continents, namely Asia, Europe, America, Africa, South Africa, and Oceania (Figure 1). At least five high ranking universities from each country were selected (Appendix A), their official webpages were visited, and the initiatives they have taken in order to create COVID-19 education and awareness were noted. Different parameters such as general awareness, up-to-date information and availability of emergency contacts were studied. Under general awareness, basic information on combating COVID-19 was considered. Up-to-date information included if COVID-19 information was updated regularly. Availability of emergency contacts included consideration of information on hotline and/or phone number at the time of urgency. Data relating to COVID-19 were taken on May 02, 2020 from the Worldometer (www.worldometer.com). Economic status (developed or developing) of the countries was referenced from United Nations.⁷ Obtained data were analyzed by descriptive analysis and further Chi-square test was done to identify any differences in data among the regions.

Results

Disseminating COVID-19 awareness information

About 78% of the top academic institutions in the world had information on COVID-19 in their webpages. Out of the six continents, a higher percentage of academic institutions of Oceania followed by Europe and North America disseminated COVID-19 information on their websites (Figure 2). Websites of all universities in Oceania, 96.7% in North America, 96.6% in Europe, 83% in South America, 61.25% in Asia, and 56% in Africa.

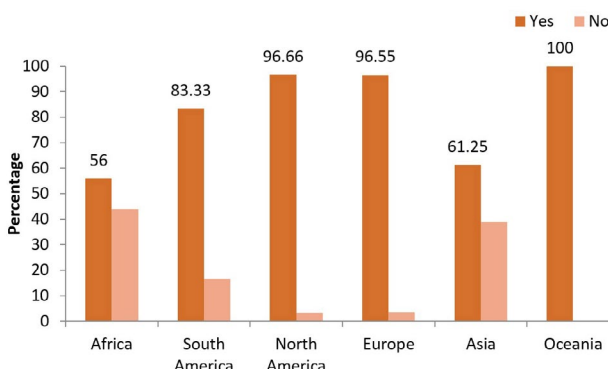


Figure 2. Awareness information on COVID-19 included in the webpage of universities in the world.

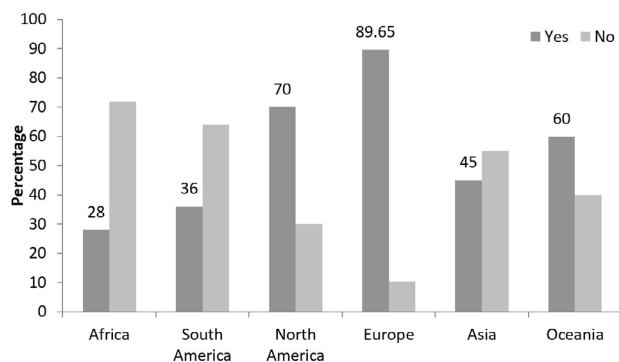


Figure 3. Inclusion of up-to-date information of COVID-19 awareness in the webpage of universities in the world.

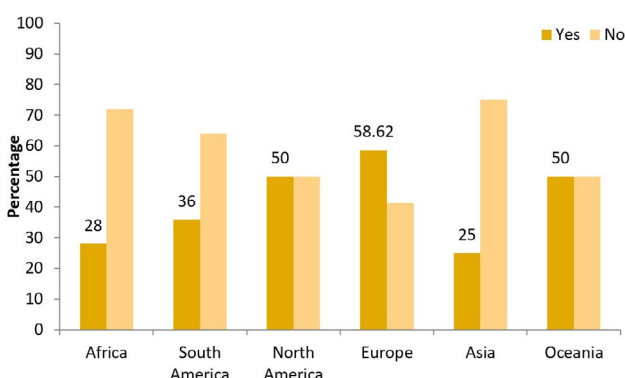


Figure 4. Inclusion of emergency contact information and/or dedicated mobile app for COVID-19 in webpage of universities in the world.

in South America, 61.3% in Asia, and 56% in Africa displayed the information regarding COVID-19. Most of this information was of the general type. Two-third of the universities were found to have up-to-date awareness information. Some universities included their research initiatives on COVID-19. Figure 3 presents a comparison between academic institutions in updating the COVID-19 information.

Emergency contact information in combating COVID-19

No information about emergency and/or a dedicated mobile app was found in all the universities’ webpage. Only 37.8% of the institutions had emergency contact information and/or mobile app in their websites. Among the six continents, the majority of the universities in Europe (58%) followed by Oceania and North America each (50%) shared such information in their websites. Only one-third of the universities from other continents shared such information (Figure 4).

From the perspective of countries’ economic status, over 96% of the universities from high income countries and 82.7% in upper-middle income countries had information of COVID-19 on their websites. In case of lower-middle income countries and low income countries, such information was uploaded in only 55% and 25% of the universities respectively (Figure 5). Disseminating COVID-19 information was statistically significantly higher in universities from developed countries (high income and upper middle income) in comparison to developing countries (lower middle income and low income) ($p < 0.001$). However, majority of the universities (85.71%) in high income countries had provided up-to-date information, 57.35% universities in upper-middle income country and only 37.5% universities in lower-middle income countries and while 20% universities in low income countries have been updating information on ongoing pandemic (Fig. 6). Moreover, updating COVID-19 information in the webpage was significantly higher in universities from developed countries in comparison to that of developing countries ($p < 0.001$).

In North America, 4% of universities had the COVID-19 related message delivered by their university presidents, while in 24% the message was by department heads or other faculty members, whereas 72% of universities did not have such a position mentioned. About 27% of the universities in South America had a special message on COVID-19 from high level officials including Vice Chancellor/ University President, and Rector. About 80% of the universities in Oceania had a COVID-19 message

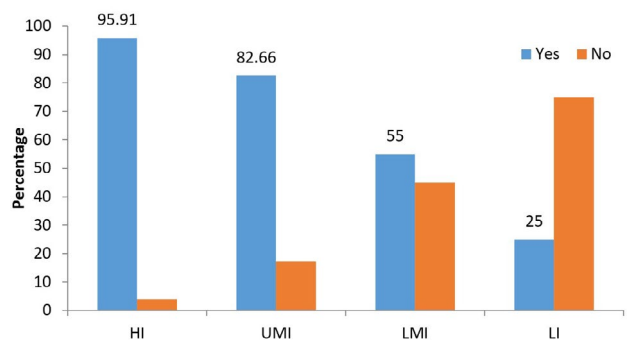


Figure 5. General awareness information dissemination through webpage of universities from high, upper middle, lower middle, and low income countries.

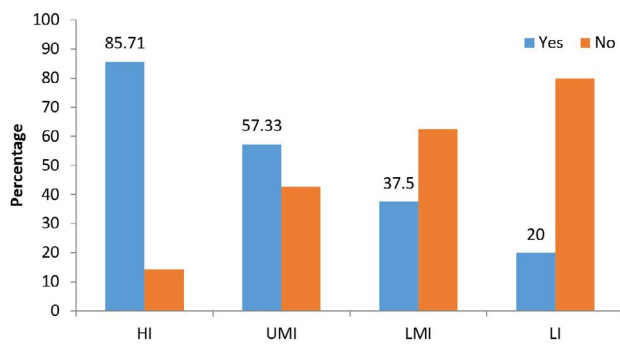


Figure 6. Up-to-date information dissemination through webpage of universities from high, upper middle, lower middle, and low income countries.

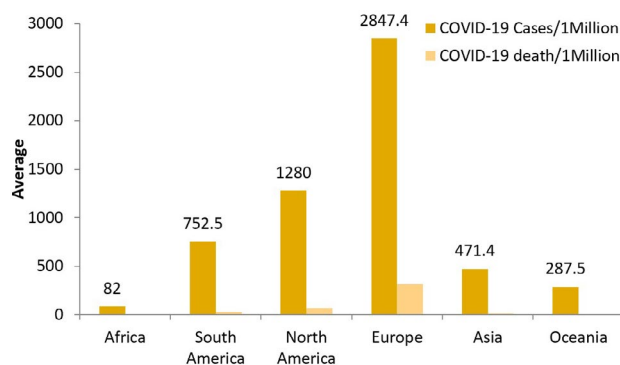


Figure 7. COVID-19 cases/million and deaths/million from six continents.

from a high level. About 68% of the universities in Europe had a COVID-19 message from high level officials. About 18% of the universities in Africa were able to put forward messages regarding COVID-19 from high level officials in their websites.

The numbers of infected people and deaths due to COVID-19 varied in the continents (Figure 7). Europe had the highest number of COVID-19 cases/million followed by North America and South America, whereas Africa had low COVID-19 cases/million. Similarly, Europe had the highest COVID-19 deaths/million but Oceania and Africa had the fewest COVID-19 deaths/million. Based on the economic status of the countries, COVID-19 cases per/million and COVID-19 deaths/million both were highest in high income countries followed by upper middle income countries, while it was found lowest in low income countries (Fig. 8).

Discussion

This paper collected the data at a given time in the evolving COVID-19 scenery, and resulted in limited variables included in the analysis to understand the role of academic institutions in disseminating information to combat COVID-19 that could naturally and understandably be skewed towards these variables. Academic institutions can play an important role in pandemic preparedness including planning for disease outbreaks or disasters.⁶ This study provided a snapshot that the universities from the western world (Europe and North America) and Oceania were disseminating more information to combat COVID-19. It seems that the level of involvement of academic institutions in combating COVID-19 is determined by how the pandemic has impacted the countries. At the time of greater impact, academic institutions become more active in educating their staff, faculties, students, and even the general public.

The availability of medical facilities, human resources, and mechanisms of reporting outbreaks varied among developed vs. developing countries. Case identification in developed countries is fast and precise in comparison to developing countries due to availability of proper medical facilities in developed countries.¹⁴ Economic status of the country determines the involvement of academic institutions in educating students and informing faculty members regarding COVID-19. Institutions from economically better countries were found to be more aggressive in disseminating awareness materials. The developing

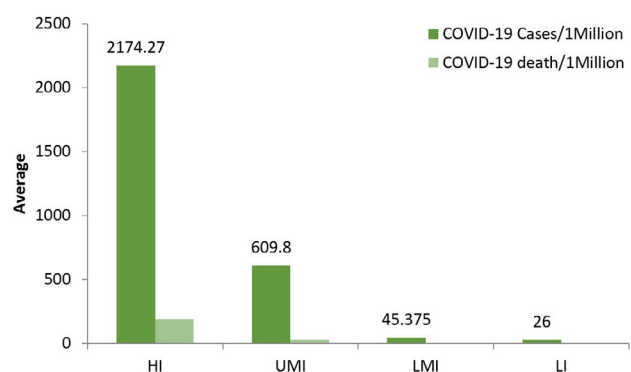


Figure 8. COVID-19 cases/million and deaths/million from high, upper middle, lower middle, and low income countries.

world including Asia and Africa has fewer universities disseminating the information.⁸ As the countries from North America and Europe were impacted severely from COVID-19 pandemic when this study was undertaken, their academic institutions were more active in disseminating information.

Importantly, high income countries and upper middle income countries were more active in disseminating information regarding COVID-19 pandemic and the majority of the universities from these countries provided up-to-date information. Such information outreaching would help combat the pandemic. Community knowledge regarding the pandemic would not be enough, and research on the effective ways to flow information to the general public is of utmost need.⁹ Educational involvement is required to promote awareness of the threat of pandemic in the community and assist with the resources and coping mechanisms for the effective response on a wide level to flatten the curve of the growing pandemic.¹⁰

Pandemic preparedness should be considered as a global perspective. However, the level of planning varies and developing countries are most likely to face difficult challenges in terms of pharmaceutical commodities, public health and clinical infrastructure, and deaths will be higher in such pandemics.¹¹ The academic institutions from the developing countries are less active in combating the pandemic. There is a huge opportunity for advancing community education around the continuing threat of future pandemics through links to online resources.¹² Readily accessible preparedness tips and emergency resources on the webpage are of great need during sudden or future disasters including a pandemic to disseminate proper information to the public.¹³

University websites provide information in a clear and accessible format, promoting the best user experience possible. At the time of an epidemic/pandemic, such sites can play a greater role in arousing public understanding of the problem. However, universities in developing nations compared to those in developed nations are paying less attention in their websites. Thus, there exists a gap in understanding the effectiveness of websites among the universities in developing nations.

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Appendix A. List of the website visited universities and countries with their economic status and COVID-19 cases per million (as of May 03, 2020).

Abb. HI= High income, LI= Low income, LMI= Lower-middle income, UMI=Upper-middle income

SN	Continent	Country	Economic status	COVID-19 cases/ million	Universities
1	Africa	Algeria	UMI	98	Université Abou Bekr Belkaid de Tlemcen, Université Abderrahmane Mira de Béjaia, Université Kasdi Merbah de Ouargla, Université Frères Mentouri de Constantine, Université Mohamed Khider de Biskra
2		Egypt	LMI	61	Cairo Univ., The American Univ. in Cairo, The German Univ. in Cairo, Mansoura Univ., Alexandria Univ.
3		Morocco	LMI	132	Univ. Mohammed V, Univ. Sidi Mohamed Ben Abdellah, Univ. Al Akhawayn, Univ. Ibn Zohr, Univ. Ibn Tofail
4		Nigeria	LMI	12	Univ. of Lagos, Covenant Univ., Univ. of Nigeria, Obafemi Awolowo Univ., Univ. of Ilorin
5		South Africa	UMI	107	Univ. of Cape Town, Univ. of the Witwatersrand, Univ. of Pretoria, Stellenbosch Univ., Univ. of Johannesburg
6	Asia	Bangladesh	LI	57	Bangladesh Agricultural Univ., Univ. of Chittagong, Univ. of Dhaka, North South Univ., Univ. of Shahjalal
7		Cambodia			The Univ. of Cambodia, Cambodian Mekong Univ., Paragon International Univ., Norton Univ.
8		China	UMI	58	Guangxi Univ., Peking Univ., Shanghai Jiao Tong Univ., Tsinghua Univ., Wuhan Univ.
9		East Timor		18	Dili Institute of Technology, National Univ. of East Timor, Universidade Da Paz, Universidade Dili, Instituto Profissional de Canossa (IPDC)
10		India	LMI	29	Univ. of Delhi, Indian Institute of Science Bangalore, Indian Institute of Technology Bombay, Banaras Hindu Univ., Univ. of Madras Chennai
11		Iran	UMI	1160	Univ. of Tehran, Amirkabir Univ. of Technology, Iran Univ. of Science and Technology, Shinaz Univ., Tehran Univ. of Medical Sciences

SN	Continent	Country	Economic status	COVID-19	Universities
				cases/ million	
12		Nepal	LI	3	Agriculture and Forestry Univ., Far Western Univ., Kathmandu Univ., Lumbini Buddhist Univ., Mid-Western Univ., Nepal Open Univ., Nepal Sanskrit Univ., Pokhara Univ., Rajarshi Janak Univ., Tribhuvan Univ.
13		Pakistan	UMI	86	Univ. in Islamabad, Univ. of Karachi, King Edward Medical Univ., Aga Khan Univ., Kinnaird College for Women Univ.
14		Singapore	HI	3112	National Univ. of Singapore, Nanyang Technological Univ., Singapore Management Univ., SIM Global Education, Singapore Univ. of Technology and Design
15		South Korea	HI	211	Korea Univ., Seoul National Univ., Yonsei Univ., KAIST, Sungkyunkwan
16		Saudi Arabia	HI	776	Jazan Univ., King Saud Univ., King Abdulaziz Univ., King Abdullah Univ. of Science and Technology, Umm Al Qura Univ.
17		Srilanka	LMI	33	Univ. of Colombo, Univ. of Jaffna, Univ. of Kelaniya, Univ. of Peradeniya, Univ. of Sri Jayewardenepura
18		Thailand	UMI	43	Kasetsart Univ. Mahidol Univ., Univ. of Phayao, Prince of Songkla Univ. Webster Univ. Thailand
19		Turkey	UMI	1475	Bilkent Univ., Istanbul Univ., Middle East Technical Univ., Ankara Univ., Yildiz Technological Univ.
20		Vietnam	LMI	3	Hoa Sen Univ., Ho Chi Minh City, Ho Chi Minh City Univ. of Science, Pham Ngoc Thach Medical Univ., Van Hien Univ.
21	Europe	Belgium	HI	4306	KU Leuven Univ., Ghent Univ., Université Catholique de Louvain, Univ. of Antwerp, Institute for European Studies - Université Libre de Bruxelles
22		France	HI	2580	Aix- Marseille Univ., Univ. of Bordeaux, Univ. of Lille, Sorbonne Univ., Univ. of Strasbourg
23		Germany	HI	1970	Univ. of Hamburg, Univ. of Heidelberg, RWTH Aachen Univ., Technical Univ. of Munich, Ludwig-Maximilians-Universität München, Munchen Freie Univ. Berlin, Univ. of Gottingen, Leiden Univ., Delft Univ. of Technology, Univ. of Groningen, Univ. of Amsterdam, Eindhoven Univ. of Technology, Maastricht Univ.

SN	Continent	Country	Economic status	COVID-19	Universities
				cases/ million	
24		Italy	HI	3462	Sant'Anna School of Advanced Studies – Pisa, Scuola Normale Superiore di Pisa, Univ. of Bologna, Univ. of Padua, Vita-Salute San Raffaele Univ.
25		Netherlands	HI	2368	Wageningen Univ. and Research, Univ. of Amsterdam, Delft Univ. of Technology, Leiden Univ., Erasmus Univ. Rotterdam
26		Norway	HI	1440	Univ. in Bergen, Harstad Univ. College, Inland Norway Univ. of Applied Science, Molde Univ. College, Nord Univ.
27		Russia	HI	923	Moscow State Institute of International Relations – MGIMO Univ., Tomsk Polytechnic Univ., National Research Univ. - Higher School of Economics, Bauman Moscow State Technical Univ., National Research Nuclear Univ. “MEPhI” (Moscow Engineering Physics Institute)
28		Spain	HI	5285	Autonomous Univ. of Madrid, Autonomous Univ. of Barcelona, Universitat de Barcelona, Complutense Univ. of Madrid, Universitat de Valencia
29		Switzerland	HI	3455	ETH Zurich, École Polytechnique Fédérale de Lausanne, Univ. of Zurich, Univ. of Basel, Univ. of Bern
30		United Kingdoms	HI	2685	Univ. of Oxford, Univ. of Cambridge, London's Global Univ., Imperial College London, King's College London
31	North America	Canada	HI	1503	Univ. of Toronto, Univ. of British Columbia, McGill Univ., McMaster Univ., Univ. of Montreal
32		Cuba	UMI	142	Univ. of Information Sciences, Marta Abreu Univ. of Las Villas, Univ. of the east, Technological Univ. of Habana Jose' Antonio Echeverria, Univ. of Cienfuegos
33		Dominican Republic	UMI	699	Mother and Teacher Pontifical Catholic Univ., Autonomous Univ. of Santo Domingo, Pedro Henríquez Ureña National Univ., Technological Institute of the Americas, Eastern Central Univ.

SN	Continent	Country	Economic status	COVID-19	Universities
				cases/ million	
34		Mexico	UMI	171	National Autonomous Univ. of Mexico, Monterrey Institute of Technology and Higher Education, National Polytechnic Institute of Mexico, Metropolitan Autonomous Univ., Ibero American Univ.
35		USA	HI	3522	California Institute of Technology, Univ. of Chicago, Harvard Univ., Massachusetts Institute of Technology, Stanford Univ.
36		Panama	UMI	1643	Univ. of Panamá, Technological Univ. of Panamá, Santa María La Antigua Catholic Univ., Interamerican Univ. of Panama, Florida State Univ. Panama City
37	South America	Argentina	UMI	104	National Univ. of Córdoba, Univ. of Buenos Aires, Univ. of Palermo Argentina, Austral Univ., Universidad Nacional de Rosario
38		Brazil	UMI	457	Univ. of Sao Paulo, Univ. of Campinas, Federal Univ. of Minas Gerais, Federal Univ. of Rio Grande Do su, Federal Univ. of Santa Catarina
39		Chile	HI	964	Pontifical catholic Univ. of chile, Univ. of Chile, Univ. of La Frontera, Austral Univ. of Chile, Univ. of Santiago
40		Colombia	UMI	143	Pontificia Universidad Javeriana, Univ. of the Andes, Universidad Nacional de Colombia, Universidad Pontificia Bolivariana, Universidad de Antioquia
41		Ecuador	UMI	1557	Universidad San Francisco De Quito, Pontifical Catholic Univ., Univ. of Cuenca, Central Univ. of Ecuador, National Polytechnic Univ.
42		Peru	UMI	1290	Pontifical Catholic Univ. of Peru, National Major San Marcos Univ., Univ. of Piura, Cesar Vallejo Univ., ESAN Univ.
43		Oceania	Australia	HI	267
44	New Zealand		HI	308	The Univ. of Auckland, Univ. of Otago, Univ. of Canterbury, Lincoln Univ., Victoria Univ. of wellington